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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,452	11/04/2004	Xingzhou Jin	042586	9405

38834 7590 08/16/2007  
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP  
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SUITE 700  
WASHINGTON, DC 20036

EXAMINER
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WOODWARD, ANA LUCRECIA

ART UNIT	PAPER NUMBER
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1711

MAIL DATE	DELIVERY MODE
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08/16/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/501,452

Applicant(s)

JIN ET AL.

Examiner

Ana L. Woodward

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on May 25, 2007
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. Claims 1, 2, 4, 8 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, it is unclear if or how a polyimide comprising phenolic hydroxyl groups is derived from the "2,2-bis[4-(4-aminophenoxy)phenyl]hexafluoropropane" per claim 4.

In claim 8, the recited solvents are not definitive of the solvent (ketone, ether or ester) genus.

In claim 16, the Markush group defining the "second diamine" encompasses the same diamines defining the (first) diamine as per claim 4.

### *Claim Rejections - 35 USC § 102/103*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 5, 6, 8-12 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,025,461 (Chiang et al).

Chiang et al disclose a photosensitive polyimide which comprises a (block) copolymer of (A) three diamine compounds consisting of a diaminopolysiloxane, a hydroxyl group-containing diamine or carboxyl group-containing diamine and 1,4-bis[2-(3-aminobenzoyl)ethenyl]benzene with (B) an aromatic tetracarboxylic acid dianhydride or a dicarboxylic anhydride having 2,5-dioxotetrahydrofuryl group as one acid anhydride group. The polyimide is soluble in all-purpose low boiling organic solvents, such as methyl ethyl ketone, tetrahydrofuran, etc. (abstract, column 5, lines 2-5). Reaction of the diamine compound mixture with the tetracarboxylic acid dianhydride is carried out preferably in an aprotic polar solvent, such as dimethylformamide, or also in a polar solvent such as cresol, pyridine. The polyimide has a weight average molecular weight Mw of about 10,000 to about 100,000 (column 4, lines 28-34). The examples provide various polyimides meeting the requirements of the present claims in terms of the types of materials added. The onus is shifted to applicants to establish that the product of the present claims is not the same as or obvious from that set forth by the claims.

5. Claims 1-16 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,627,377 (Itatani et al).

Itatani et al disclose a photosensitive which comprises a (block) copolymer obtained from tetracarboxylic dianhydride and diamine components. By employing an aromatic diamine into which hydroxyl groups are introduced, the aromatic diamine is bound to or interacts with the acid produced by the photoacid generator, so that positive-type images are more easily formed

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by alkali treatments. Exemplary of said alkali-solubility increasing aromatic diamines includes the same hydroxyl-containing aromatic diamines per applicants' claim 4. The polyimide is soluble in N-methyl-2-pyrrolidone, and in diluents such as cyclohexanone, methyl lactate, anisole, ethyl acetate, etc. (column 11, lines 47-51). The imidation reaction between the dianhydride and diamine components is carried out in the presence of a catalyst resulting from a lactone and a base. The polyimide has a weight average molecular weight  $M_w$  of about 10,000 to about 100,000. The examples provide various polyimides meeting the requirements of the present claims in terms of the types of materials added. The onus is shifted to applicants to establish that the product of the present claims is not the same as or obvious from that set forth by the claims.

***Claim Rejections - 35 USC § 103***

6. Claims 4, 7 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,025,461 (Chiang et al) described hereinabove in view of US 6,630,064 (Itatani et al).

The use of hydroxyl group-containing diamines per claim 4 (e.g., 3,3'-dihydroxy-4,4'-diaminobiphenyl), the use of an ester solvent (e.g., methyl lactate, ethyl acetate) and the imidation reaction of the diamine and dianhydride components sequentially in two steps using a catalyst generated by a lactone and a base in the production of the block polyimides of Chiang et al would have been within the purview and obvious to one having ordinary skill in the art with the reasonable expectation of success. In this regard, attention is directed to the similar-such teachings of Itatani et al (column 4, lines 23-29, column 2, lines 20-26 and column 5, lines 43-65, etc.) which evince the conventionality of each of these usages. Accordingly, absent evidence

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of unusual or unexpected results, no patentability can be seen in the subject matter of the above-rejected claims.

***Response to Amendment***

7. Applicant's amendments and arguments filed May 25, 2007 with respect to JP '488 have been fully considered and are persuasive. The rejection based on JP '488 of claims 1-15 has been withdrawn.

***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

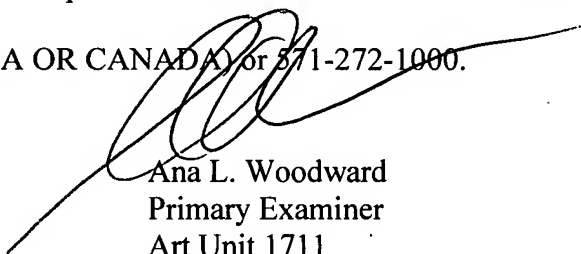
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana L. Woodward whose telephone number is (571) 272-1082. The examiner can normally be reached on Monday-Friday (8:30-5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James J. Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ana L. Woodward  
Primary Examiner  
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***Conclusion***

5.

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